

Appl. No. 10/773,908
Amdt. dated February 27, 2006
Reply to Office Action of November 29, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently Amended) A lamp for emitting light, comprising:
a lamp body in which a discharge gas is injected; and
first and second electrodes disposed at opposite ends of the lamp body, for receiving current externally provided, wherein the first electrode includes:
a first member for receiving a first end portion of the lamp body, the first member being electrically conductive; and
a second member disposed between the first member and the lamp body, the second member having metallic solder and being coated on the first end portion of the lamp body by melting to provide adhesion between the first member and the lamp body.
2. (Original) The lamp of claim 1, wherein the first member of the first electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.
3. (Original) The lamp of claim 2, wherein the first member of the first electrode includes one of nickel, nickel alloy, brass or a mixture thereof.
4. (Original) The lamp of claim 3, wherein the first member of the first electrode includes a gold film coated on a surface of the first member.
5. (Original) The lamp of claim 1, wherein the second member of the first electrode is airtightly formed to prevent a void gap between the first member and the lamp body.
6. (Original) The lamp of claim 1, wherein the second member of the first electrode has a melting point lower than a melting point of the first member of the first electrode.

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7. (Original) The lamp of claim 1, wherein the metallic solder of the second member includes one of leadless metal mixed with tin and zinc, lead mixed with silver, lead, lead alloy, and a mixture thereof.

8. (Original) The lamp of claim 1, wherein the first end portion of the lamp body has a rough surface on which the second member of the first electrode is coated, the rough surface increasing adhesion between the first end portion of the lamp body and the second member of the first electrode.

9. (Original) The lamp of claim 1, wherein the first member of the first electrode has a tube shape having opposite ends of which one is open and the other is closed.

10. (Original) The lamp of claim 9, wherein a size of entire inner surface of the first member of the first electrode is substantially identical with a size of entire outer surface of the second member of the first electrode.

11. (Original) The lamp of claim 9, wherein the first member of the first electrode has a thickness in a range from about 0.1 mm to 0.2 mm.

12. (Original) The lamp of claim 1, wherein the second electrode includes:
a third member for receiving a second end portion of the lamp body, the third member being electrically conductive; and
a fourth member disposed between the third member and the lamp body, the fourth member having metallic solder and being coated on the second end portion of the lamp body to provide adhesion between the third member and the lamp body.

13. (Original) The lamp of claim 12, wherein the third member of the second electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.

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14. (Original) The lamp of claim 12, wherein the fourth member of the second electrode is airtightly formed to prevent a void gap between the third member and the lamp body.

15. (Original) The lamp of claim 12, wherein the second end portion of the lamp body has a rough surface on which the fourth member of the second electrode is coated, the rough surface increasing adhesion between the second end portion of the lamp body and the fourth member of the second electrode.

16. (Original) The lamp of claim 12, wherein the third member of the second electrode has a tube shape having opposite ends of which one is open and the other is closed.

17. (Original) The lamp of claim 16, wherein a size of entire inner surface of the third member of the second electrode is substantially identical with a size of entire outer surface of the fourth member of the second electrode.

18. (Original) The lamp of claim 1, wherein the second electrode includes:
a third member disposed in a second end portion of the lamp body, the third member receiving a driving voltage externally provided; and
a fourth member for receiving the second end portion of the lamp body in which the third member is disposed, the fourth member having a contact part through which the third member is in contact with a electric source providing the driving voltage.

19. (Original) The lamp of claim 18, wherein the third member of the second electrode includes:
an electrode body disposed in the discharge gas of the lamp body;
a lead wire for transferring the driving voltage to the electrode body; and
a sealing member for sealing the second end portion of the lamp body to prevent a leak of the discharge gas and for holding the lead wire.

20. (Original) The lamp of claim 19, wherein the sealing member has a conduit through which the lead wire is extended from the electrode body to the fourth member.

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21. (Original) The lamp of claim 19, wherein the contact part of the fourth member of the second electrode is a hole through which the lead wire is extended to be in contact with the electric source.

22. (Previously Presented) The lamp of claim 21, wherein the lead wire is soldered at the hole of the fourth member of the second electrode.

23. (Original) The lamp of claim 19, wherein the electrode body has a cup shape having opposite ends of which one is open and the other is closed and connected with the lead wire.

24. (Previously Presented) The lamp of claim 19, wherein the electrode body is made of material including one of copper, nickel, nickel alloy, and a mixture thereof.

25. (Currently Amended) A light assembly for providing light, comprising:
a lamp for emitting light, including:

a lamp body in which a discharge gas is injected; and

first and second electrodes disposed at opposite ends of the lamp body, for receiving a driving voltage externally provided, wherein the first electrode includes:

a first member for receiving a first end portion of the lamp body, the first member being electrically conductive; and

a second member disposed between the first member and the lamp body, the second member having metallic solder and being coated on the first end portion of the lamp body by melting to provide adhesion between the first member and the lamp body;

a voltage applying module for receiving the driving voltage from an external source and providing the driving voltage to the first and second electrodes of the lamp; and

a receiving container for receiving and securely holding the lamp and the voltage applying module.

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26. (Previously Presented) The light assembly of claim 25, wherein the receiving container includes:

- a first frame for receiving the first electrode of the lamp; and
- a first lamp clip for holding the first electrode of the lamp, the first lamp clip being attached to the first frame.

27. (Previously Presented) The light assembly of claim 26, wherein the first frame includes:

- upper and lower parts between which the first electrode of the lamp is disposed; and
- a connection part connected with the upper and lower parts, the connection part having an opening through which the first electrode of the lamp is inserted.

28. (Previously Presented) The light assembly of claim 25, wherein the voltage applying module is connected with a plurality of lamps each of which is substantially identical with the lamp, the plurality of the lamps being arranged parallel with each other with respect to the voltage applying module.

29. (Previously Presented) The light assembly of claim 28, wherein the first member of the first electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.

30. (Previously Presented) The light assembly of claim 28, wherein the second member of the first electrode is airtightly formed to prevent a void gap between the first member and the lamp body, and has a melting point lower than a melting point of the first member of the first electrode.

31. (Previously Presented) The light assembly of claim 28, wherein the metallic solder of the second member includes one of leadless metal mixed with tin and zinc, lead mixed with silver, lead, lead alloy, and a mixture thereof.

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32. (Previously Presented) The light assembly of claim 28, wherein the first end portion of the lamp body has a rough surface on which the second member of the first electrode is coated, the rough surface increasing adhesion between the first end portion of the lamp body and the second member of the first electrode.

33. (Previously Presented) The light assembly of claim 28, wherein the first member of the first electrode has a tube shape having opposite ends of which one is open and the other is closed.

34. (Previously Presented) The light assembly of claim 33, wherein a size of entire inner surface of the first member of the first electrode is substantially identical with a size of entire outer surface of the second member of the first electrode.

35. (Previously Presented) The light assembly of claim 28, wherein the second electrode includes:

- a third member for receiving a second end portion of the lamp body, the third member being electrically conductive; and

- a fourth member disposed between the third member and the lamp body, the fourth member having metallic solder and being coated on the second end portion of the lamp body to provide adhesion between the third member and the lamp body.

36. (Previously Presented) The light assembly of claim 35, wherein the receiving container includes:

- a second frame for receiving the second electrode of the lamp; and

- a second lamp clip for holding the second electrode of the lamp, the second lamp clip being attached to the second frame.

37. (Previously Presented) The light assembly of claim 36, wherein the second frame includes:

- upper and lower parts between which the second electrode of the lamp is disposed; and

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a connection part connected with the upper and lower parts, the connection part having an opening through which the second electrode of the lamp is inserted.

38. (Previously Presented) The light assembly of claim 35, wherein the third member of the second electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.

39. (Previously Presented) The light assembly of claim 35, wherein the second end portion of the lamp body has a rough surface on which the fourth member of the second electrode is coated, the rough surface increasing adhesion between the second end portion of the lamp body and the fourth member of the second electrode.

40. (Previously Presented) The light assembly of claim 35, wherein the third member of the second electrode has a tube shape having opposite ends of which one is open and the other is closed.

41. (Previously Presented) The light assembly of claim 40, wherein a size of entire inner surface of the third member of the second electrode is substantially identical with a size of entire outer surface of the fourth member of the second electrode.

42. (Previously Presented) The light assembly of claim 28, wherein the second electrode includes:

a third member disposed in a second end portion of the lamp body, the third member receiving a driving voltage externally provided; and

a fourth member for receiving the second end portion of the lamp body in which the third member is disposed, the fourth member having a contact part through which the third member is in contact with a electric source providing the driving voltage.

43. (Previously Presented) The light assembly of claim 42, wherein the third member of the second electrode includes:

an electrode body disposed in the discharge gas of the lamp body;

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a lead wire for transferring the driving voltage to the electrode body; and
a sealing member for sealing the second end portion of the lamp body to prevent a leak of the discharge gas and for holding the lead wire.

44. (Previously Presented) The light assembly of claim 43, wherein the sealing member has a conduit through which the lead wire is extended from the electrode body to the fourth member.

45. (Previously Presented) The lamp of claim 43, wherein the contact part of the fourth member of the second electrode is a hole through which the lead wire is extended to be in contact with the electric source.

46. (Currently Amended) An image display device for displaying images using light internally provided, comprising:

a display panel for displaying images using the light and image data externally provided;

a light assembly for providing the light, the light assembly comprising:

a lamp for emitting light, including:

a lamp body in which a discharge gas is injected; and

first and second electrodes disposed at opposite ends of the lamp body, for receiving a driving voltage externally provided, wherein the first electrode includes:

a first member for receiving a first end portion of the lamp body, the first member being electrically conductive; and

a second member disposed between the first member and the lamp body, the second member having metallic solder and being coated on the first end portion of the lamp body by melting to provide adhesion between the first member and the lamp body;

a voltage applying module for receiving the driving voltage from an external source and providing the driving voltage to the first and second electrodes of the lamp; and

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a receiving container for receiving and securely holding the lamp and the voltage applying module;
a middle chassis disposed between the display panel and the receiving container, for securing the display panel onto the receiving container; and
a chassis connected to the receiving container, for holding an edge of the display panel to prevent the display panel and the light assembly from being disassembled.

47. (Previously Presented) The image display device of claim 46, wherein the first member of the first electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.

48. (Previously Presented) The image display device of claim 46, wherein the first end portion of the lamp body has a rough surface on which the second member of the first electrode is coated, the rough surface increasing adhesion between the first end portion of the lamp body and the second member of the first electrode.

49. (Previously Presented) The image display device of claim 46, wherein the first member of the first electrode has a tube shape having opposite ends of which one is open and the other is closed.

50. (Previously Presented) The image display device of claim 46, wherein the second electrode of the lamp includes:

a third member for receiving a second end portion of the lamp body, the third member being electrically conductive; and

a fourth member disposed between the third member and the lamp body, the fourth member having metallic solder and being coated on the second end portion of the lamp body to provide adhesion between the third member and the lamp body.

51. (Previously Presented) The image display device of claim 50, wherein the third member of the second electrode has a tube shape of which opposite ends are open to receive the first end portion of the lamp body.

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52. (Previously Presented) The image display device of claim 50, wherein the second end portion of the lamp body has a rough surface on which the fourth member of the second electrode is coated, the rough surface increasing adhesion between the second end portion of the lamp body and the fourth member of the second electrode.

53. (Previously Presented) The image display device of claim 50, wherein the third member of the second electrode has a tube shape having opposite ends of which one is open and the other is closed.

54. (Previously Presented) The image display device of claim 46, wherein the second electrode includes:

a third member disposed in a second end portion of the lamp body, the third member receiving a driving voltage externally provided; and

a fourth member for receiving the second end portion of the lamp body in which the third member is disposed, the fourth member having a contact part through which the third member is in contact with a electric source providing the driving voltage.

55. (Previously Presented) The image display device of claim 54, wherein the third member of the second electrode includes:

an electrode body disposed in the discharge gas of the lamp body;

a lead wire for transferring the driving voltage to the electrode body; and

a sealing member for sealing the second end portion of the lamp body to prevent a leak of the discharge gas and for holding the lead wire, the sealing member having a conduit through which the lead wire is extended from the electrode body to the fourth member.

56. (Previously Presented) The image display device of claim 55, wherein the contact part of the fourth member of the second electrode is a hole through which the lead wire is extended to be in contact with the electric source.

57. (Withdrawn) A method for manufacturing a lamp, comprising:

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forming a fluorescent layer on an inner surface of a lamp body;
inserting a discharge gas in the lamp body;
coating a first end portion of the lamp body with conductive material to form a first conductive layer on the first end portion, the conductive material having metallic solder; and
combining the lamp body with a first metal tube by inserting the first end portion into the first metal tube to form a first electrode of the lamp.

58. (Withdrawn) The method of claim 57, further including forming a first rough surface on the first end portion of the lamp body to increase adhesion between the first end portion and the first conductive layer coated on the first end portion.

59. (Withdrawn) The method of claim 57, wherein the conductive material has a melting point lower than the first metal tube.

60. (Withdrawn) The method of claim 59, wherein the metallic solder of the first conductive layer includes one of leadless metal mixed with tin and zinc, lead mixed with silver, lead, lead alloy, and a mixture thereof.

61. (Withdrawn) The method of claim 59, further including heating the first electrode to melt the conductive material so that the first conductive layer is uniformly filled with a uniform thickness between the first metal tube and the first end portion of the lamp body.

62. (Withdrawn) The method of claim 57, further including:
coating a second end portion of the lamp body with the conductive material to form a second conductive layer on the second end portion; and
combining the lamp body with a second metal tube by inserting the second end portion into the second metal tube to form a second electrode of the lamp.

63. (Withdrawn) The method of claim 62, further including forming a second rough surface on the second end portion of the lamp body to increase adhesion between the second end portion and the second conductive layer coated on the second end portion.

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64. (Withdrawn) The method of claim 62, further including heating the second electrode to melt the conductive material so that the second conductive layer is uniformly filled with a uniform thickness between the second metal tube and the second end portion of the lamp body.